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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,932	07/20/2001	Blaise deB. Frederick	04843-036001	2406

26161 7590 09/05/2003

FISH & RICHARDSON PC
225 FRANKLIN ST
BOSTON, MA 02110

EXAMINER

SHRIVASTAV, BRIJ B

ART UNIT	PAPER NUMBER
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2859

DATE MAILED: 09/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/909,932

Applicant(s)

FREDERICK ET AL.

Examiner

Brij B Shrivastav

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✓

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment filed on June 25, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Amendment dated June 25, 2003 has been received and entered. The formal drawings applicant has sent are not in the file.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hurd (US 6,242,915), and further in view of Schaefer et al (US 4,719,406).

As regard to claim 1, Hurd teaches a wave form generator, which uses data reflecting the time-varying magnetic resonance radio frequency signal to generate a wave form having time varying property (figures 1 and 2, numerals 119, 121, 122; columns 3 and 5, lines 15-34, and 40-44). Further, Hurd teaches a signal transmitter to transmit the waveform having the time-varying property to a magnetic resonance scanner (figure 1, numerals 150, 151, and 154). Hurd does not teach a waveform simulating a waveform of a subject undergoing a magnetic resonance scan. Schaefer et al teach a waveform simulating a waveform of a subject undergoing a magnetic resonance scan (see the abstract, columns 2 and 3, lines 40-68, 1-15).

It would have been obvious for one having ordinary skill in the art at the time the invention was made to combine radio frequency coil phantom of Schaefer et al with the teachings of Hurd to improve apparatus quality as a phantom and have operators under

training to run the machine without use of live subject to improve imaging skills for future imaging service to patients.

As regards to claims 2-4, Heard also teaches a computer as a control device as a part of a waveform generator, and a waveform generator with a base-band or intermediate frequency generator and modulator, or a digital frequency synthesizer (figures 1 and 2, numerals 200, 122, and 202).

As regards to claim 5, Hurd further inherently teaches amplitude, frequency, or phase as being time-varying property of the waveform generator (column 4, lines 5- 27).

As regards to claims 6 and 7, Hurd further teaches: a) a transmitter as an antenna or a cable (figure 1, numerals 150, 151, 154), b) a magnetic resonance scanner and a waveform generator (figures 1 and 2, numerals 121, 141, and 200).

As regards to claims 8-10 and 33, Hurd further teaches: a) a keyboard (figure 1, numeral 102); b) a monitoring device for recording operating parameters of a magnetic resonance scanner or free induction decay signals, wherein the operating device is a digital or analog signal recorder, and a real subject (figure 1, numerals 100, 104, and 107 and 141).

3. As regards to claim 11, Hurd teaches a storage medium to store data reflecting magnetic resonance radio frequency signal (figure 1, numeral 160; column 3, lines 52-65); a wave form generator, which uses data reflecting the time-varying magnetic resonance radio frequency signal to generate a wave form having time varying property (figure 1, numerals 119, 121, 122; column 3, lines 15-34). Further, Hurd teaches a

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signal transmitter to transmit the waveform having the time-varying property to a magnetic resonance scanner (figure 1, numerals 150, 151, 154 and 141).

Hurd does not teach a waveform simulating a waveform of a subject undergoing a magnetic resonance scan. Schaefer et al teach a waveform simulating a waveform of a subject undergoing a magnetic resonance scan (see the abstract, columns 2 and 3, lines 40-68, 1-15).

It would have been obvious for one having ordinary skill in the art at the time the invention was made to combine radio frequency coil phantom of Schaefer et al with the teachings of Hurd to improve apparatus quality as a phantom and have operators under training to run the machine without use of live subject to improve imaging skills for future imaging service to patients.

As regards to claim 12, Hurd further inherently teaches a random access memory, a magnetic storage medium, or an optical disk as storage medium (figure 1, numeral 160).

As regards to claims 13-15, Heard also teaches a computer as a control device as a part of a waveform generator, and a waveform generator with a base-band or intermediate frequency generator and modulator, or a digital frequency synthesizer (figures 1 and 2, numerals 122 and 22-202).

As regards to claims 16 and 17, Hurd further teaches: a) a transmitter as an antenna or a cable (figure 1, numerals 150, 151, 154), b) a magnetic resonance scanner and a waveform generator (figure 1 and numeral 121).

As regards to claims 18, 19 and 34, Hurd further teaches a monitoring device for recording operating parameters of a magnetic resonance scanner or free induction decay signals, wherein the operating device is a digital or analog signal recorder, and a real subject (figure 1, numerals 100, 107 and 141).

4. As regards to claim 20, Hurd teaches a wave form generator, which uses data reflecting the time-varying magnetic resonance radio frequency signal to generate a wave form having time varying property (figures 1 and 2, numerals 119, 121, 122; column 3, lines 15-34). Hurd also teaches a signal transmitter to transmit the waveform having the time-varying property to a magnetic resonance scanner (figure 1, numerals 150, 151, 154 and 141), and a magnetic resonance scanner, which receives the waveform and uses it to produce an image (figure 1, numerals 141, 107, and 100). Hurd does not teach a waveform simulating a waveform of a subject undergoing a magnetic resonance scan. Schaefer et al teach a waveform simulating a waveform of a subject undergoing a magnetic resonance scan (see the abstract, columns 2 and 3, lines 40-68, 1-15).

It would have been obvious for one having ordinary skill in the art at the time the invention was made to combine radio frequency coil phantom of Schaefer et al with the teachings of Hurd to improve apparatus quality as a phantom and have operators under training to run the machine without use of live subject to improve imaging skills for future imaging service to patients.

As regards to claims 21-23, Heard also teaches a computer as a control device as a part of a waveform generator, and a waveform generator with a base-band or

intermediate frequency generator and modulator, or a digital frequency synthesizer (figures 1 and 2, numerals 122, 200 and 202).

As regards to claims 24 and 35, Hurd further teaches: a) a transmitter as an antenna and a real subject (figure 1, numerals 141, 150, 151, 154).

5. As regards to claim 25, Hurd teaches a wave form generator, which uses data reflecting the time-varying magnetic resonance radio frequency signal to generate a wave form having time varying property (figures 1 and 2, numerals 119, 121, 122; column 3, lines 15-34). Hurd also teaches a signal transmitter to transmit the waveform having the time-varying property to a magnetic resonance scanner (figure 1, numerals 150, 151, 154 and 141), and a magnetic resonance scanner, which receives the waveform and uses it to produce an image (figure 1, numerals 141, 107, and 100). Hurd does not teach a waveform simulating a waveform of a subject undergoing a magnetic resonance scan. Schaefer et al teach a waveform simulating a waveform of a subject undergoing a magnetic resonance scan (see the abstract, columns 2 and 3, lines 40-68, 1-15).

It would have been obvious for one having ordinary skill in the art at the time the invention was made to combine radio frequency coil phantom of Schaefer et al with the teachings of Hurd to improve apparatus quality as a phantom and have operators under training to run the machine without use of live subject to improve imaging skills for future imaging service to patients.

As regards to claims 26 and 27, Hurd further inherently teaches amplitude, frequency, or phase as time-varying property of the waveform generator (column 4,

lines 5- 27) and the stored data reflect the time-varying MR RF signal (figure 1, numerals 107, 122).

As regards claim 28 and 36, Hurd teaches detecting the waveform having the time-varying property, and a real subject (figure 1, numerals 141, 152, 130).

As regards to claim 29-32, Hurd fails to teach: a) testing and calibrating a magnetic resonance system, and data processing system; and b) training operators of a magnetic resonance system. Schaefer et al teaches testing and calibrating a magnetic resonance system, and training operators of a magnetic resonance system (see abstract). It would have been obvious for one having ordinary skill in the art at the time the invention was made to combine teachings of Schaefer et al with the teachings of Hurd to improve machine quality for improved quality images.

5. Claims 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hurd (US 6,242,915) in view of Schaefer et al (US 4,719,406), and further in view of Gevins et al (4,736,751).

As regards to claims 37-40, neither Hurd nor Schaefer et al teach a subject being constructed by computer programming. Gevins et al teach a subject constructed by computer programming (see abstract). It would have been obvious to one of ordinary skill in the art to adapt Gevins method and apparatus with the combined method and apparatus of Hurd and Schaefer et al to develop a phantom of a subject or construct a subject by computer programming to simulate functional aspects of various organs of the body for training purposes to improve imaging skills of health professionals.

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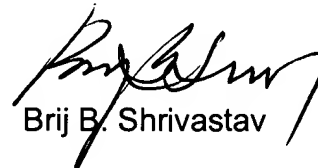
6. The application does not contain the Oath/Declaration. Applicant(s) are required to submit the same.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brij B Shrivastav whose telephone number is 703-305-0649. The examiner can normally be reached on 7 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 703-305-4816. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-304-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0956.

Bbs



Brij B. Shrivastav

August 18, 2003

Patent Examiner